

Chapter 1

Healthcare Environment

Learning Objectives

At the conclusion of this chapter, the reader will be able to

- Articulate characteristics and services of different types of healthcare organizations (e.g., hospitals, clinics, ambulatory centers, community health organizations, healthcare payers, regulators, research and academic)
- Articulate characteristics of interrelationships within and across healthcare organizations (e.g., health information exchange, public, private, continuity of care)
- Describe the roles and responsibilities of healthcare information and management system professionals within the organizational structures in which they work
- Recognize the impact of commonly accepted laws, regulations, accreditation and other state and local rules that govern critical healthcare information and systems management services, including privacy, safety and security (e.g., privacy regulations, pharmacy, environments of care, patient rights) on the healthcare industry
- Evaluate trends in healthcare technology and implement strategies to improve patient outcomes (e.g., telemedicine, patient portals, wearable devices, population health)

Introduction

In order to best understand the context of healthcare information and management systems, it is necessary to first understand the concept of health. The World Health Organization (WHO) asserts that “health is a state of complete

physical, mental and social well-being and not merely the absence of disease or infirmity.”¹ The WHO has not amended this definition since 1948.

Why is it important that we more fully understand this more holistic concept of health? If we do not present for care until we are in an advanced stage of disease or arrive with injuries from unsafe working or living practices, the cost of providing that care is likely to be high and the health outcomes often less than desired. The practice of healthcare, and thus the systems and management processes supporting it, is increasingly focused on those activities that have the greatest impact on the overall health of the community and patient populations. A state of health is not best achieved by limiting our engagement to patients’ visits to the doctor’s office and admissions to hospitals, but is increasingly extended to wellness encounters with nonphysician healthcare providers, virtual encounters through telehealth or mobile health technologies and safety and preventive care outreach programs. The increasing strain of healthcare costs on national economies is forcing us to continually reevaluate our healthcare delivery paradigm to optimize health outcomes at an affordable cost. This is the macroeconomic context in which health information professionals and technologists will be performing their art.

The healthcare environment is an exceptionally complex one in which multiple players compete for placement on center stage. The four pillars of quality, access, cost and value require dynamic trade-offs in which healthcare professionals are under constant pressure to deliver the highest quality of care to the greatest portion of their supported population within tight cost constraints, while having to demonstrate the value of health information technology (IT). Placed upon this already complex four-legged stool are demands from multiple stakeholders, including governments, consumer groups, professional associations, regulatory organizations, payers/insurers and suppliers.

The Organisation for Economic Cooperation and Development (OECD) provides a solid basis for comparing international approaches with organizing and resourcing national healthcare with several key indicators on health system performance across countries. [Figure 1.1](#) illustrates the substantial variance in spending by country and the proportion of public to private contribution to overall national health expenditures.

These investments have seen great reductions in cardiovascular and infant mortality rates, but lifestyle and risk factors show that more than 18% of adults continue to smoke daily,² while almost one-third of children 5–9 years are overweight, with the rate of overweight children increasing from 20.5% to 31.4% from 1990 to 2016.²

Therefore, it is not hard to develop a sense of the complexities of the healthcare environment in which we toil. The breadth of stakeholders, the balance of public versus private funding and the active engagement to improve the health of populations, one individual at a time, produce a daunting task. This is the arena the health information professional and technologist enter to ensure that the best possible information management and systems support are

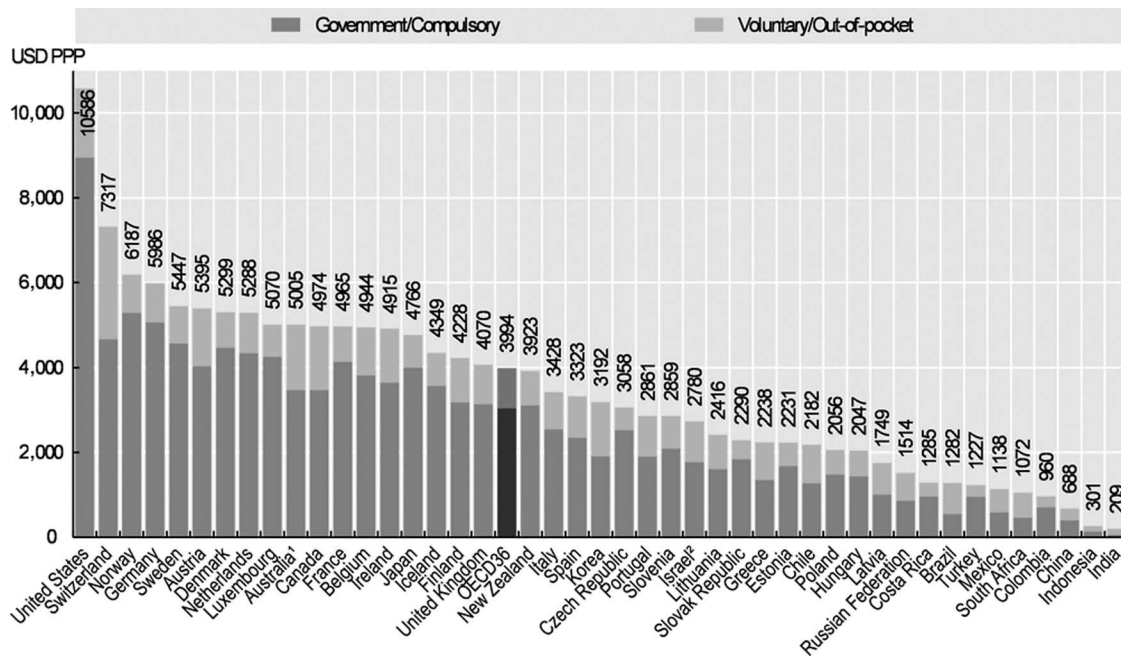


Figure 1.1 OECD health expenditure per capita, 2018. (From OECD, *health expenditure per capita, in health at a glance 2019: OECD indicators*, OECD publishing, Paris, <https://doi.org/10.1787/4dd50c09-en.2>).

Note: Expenditure excludes investments, unless otherwise stated.

1. Australia expenditure estimates exclude all expenditure for residential aged care facilities in welfare (social) services.

available to improve the quality of life for the greatest number of our world's citizens.

Healthcare Organizations

The number and types of organizations involved in the provision of care, supporting the provision of care and paying for the care provided is large, complex and constantly evolving. The simplest way to categorize these is through the eyes of the patient. When speaking of accessing care, often a patient will say, “I went to see my doctor at her office” or “I was in the hospital last week to have my appendix out.” So, in a broad sense, we have the constructs of hospital-based care—often referred to as inpatient care—and care from doctors’ offices—referred to as outpatient or ambulatory care. Additionally, given the diverse types of diagnostic services and pharmaceuticals needed to support the healthcare process, providers of ancillary services are included as well. Lastly, regulators and payers of care are discussed. The interrelationships among these diverse players will be expanded upon in the next section. The following is an overview of many of these structures, which vary not only by country but also often by geographic location within countries.

Hospitals

While hospitals may be categorized in any number of ways, a single hospital may also be classified in more than one way. For example, a hospital may be a private, not-for-profit and specialty hospital, thus falling into three categories. Notable systems for classifying hospitals include classification by the following:

1. Ownership. Public (government-managed) versus private hospitals.
 - a. In public hospitals, governments (at the national, provincial, state or other level) own and are responsible for the operations. The healthcare providers in such hospitals are generally private practitioners, although in some countries the providers may be government employees as well (e.g., in the National Health Service [NHS] of the United Kingdom or the U.S. Veterans Health Administration hospitals).
 - b. In private hospitals, staffing arrangements span a broad spectrum of private practitioners or groups of healthcare providers. Private hospitals in some countries are further classified as for profit versus nonprofit.
 - i. For-profit private hospitals, also referred to as investor-owned hospitals, often exist as part of a multihospital system with varying degrees of interrelationship among the system's hospitals. Examples of large, investor-owned hospital systems include the Hospital Corporation of America (<http://hcahealthcare.com/>) and BMI Healthcare in the United Kingdom (<http://www.bmihealthcare.co.uk/>).
 - ii. Nonprofit private hospitals are not investor owned, but rather exist under laws at national and state levels allowing them to organize as nonprofit corporations, generally providing them the advantage of avoiding federal and property taxes. Canada's hospitals, although publicly financed, are almost exclusively private, nonprofit organizations,³ albeit funded through the provincial/territorial governments. Just more than half of the hospitals in the United States operate as private, nonprofit organizations.⁴
2. Types of service provided. Hospitals are often classified by the types of service they provide. While the majority of hospitals will be general hospitals supporting the most common types of medical and surgical care requirements, hospitals specializing in more focused areas of care are becoming more prevalent. Such hospitals include psychiatric hospitals, which focus on mental healthcare; rehabilitation hospitals, which generally focus on restoring neurological and musculoskeletal functions following treatment in an acute care facility; and children's hospitals, which focus on the care and treatment of children.
3. Teaching status. In addition to providing inpatient clinical services, teaching hospitals train future physicians and other healthcare providers. Often associated with academic institutions, teaching hospitals may be further classified as academic medical centers or university hospitals. Many such

institutions also contribute substantially to medical research and publish much of the knowledge that advances the science of medicine.

4. Geographic location. Hospitals may be further classified as urban hospitals when located in large cities or as rural hospitals when substantially distant from major urban areas with greater resources. While such classifications appear mundane, the challenges of operating in urban and rural environments are different enough to require programs of specialization. Meeting government standards for classification as urban or rural may provide such hospitals access to special government funding programs.

Outpatient or Ambulatory Care—A Shift in the Care Setting

When a patient's care does not require the intensive management of a hospital setting that care is generally received in an outpatient or ambulatory care setting—most frequently in a doctor's office. Most primary care—the care practiced by primary care providers (PCPs) or general practitioners (GPs)—is provided in the ambulatory setting. Similarly, most PCP/GP referrals to clinical specialists for evaluation are completed in the ambulatory setting as well. The past decade has seen a dramatic shift from the acute care setting to less-expensive, more patient-friendly care settings. In the last few years, many less complicated surgical procedures that previously required an overnight hospital stay have been moved to the outpatient setting as well. Even major surgeries such as total joint replacement are now routinely performed in an ambulatory surgery center (ASC) with the patient going home the same day. Patients are demanding more flexible hours, and urgent care or injury clinics are opening up at a tremendous rate. Nontraditional care settings are springing up, with drugstores offering “minute clinics” and other walk-in options. Today's patient is accustomed to an always-on, always available experience and demands that from healthcare. There is a proliferation of direct appointment booking and “virtual” visits using video calling apps. These patients are no longer content to call a physician office and wait to be called back, or to wait weeks to see a specialist. Practices that are responsive to this new model will be the ones who thrive. There are multiple models of outpatient care, including single independent provider offices, larger multi-provider group practices in which a broader range of specialists may be available, and—while not a preferred approach from an expense perspective—hospital emergency departments.

Community Health Organizations

In the healthcare environment, a “community” generally refers to the specific geographic location in which healthcare is delivered. Thus, healthcare organizations serving the population of local areas tend to be broadly referred to as community health organizations. Community-centered hospitals and clinics in most nations provide most of the care available to their local populations. Some

nations provide more formal designations of community healthcare organizations that impose both legally constrained definitions and operational characteristics. In Canada, a community health center (CHC) is a key provider of local health services and aspires to support access and comprehensive care, including health promotion and illness prevention, through a publicly administered process.⁵ In the United States, CHCs are generally associated with medically underserved areas as defined by the Health Resources and Services Administration (HRSA). These health centers strive to provide comprehensive, culturally competent, quality primary healthcare services to medically underserved communities and vulnerable populations.⁶ Small community hospitals located in rural areas of the United States may apply for designation as critical access hospitals (CAHs), allowing them to receive higher reimbursement rates.

Diagnostic and Pharmaceutical Services

The most effective healthcare treatment quite frequently requires the aid of diagnostic services and pharmaceutical treatments, commonly referred to as ancillary services. While larger hospitals will generally have these capabilities, smaller hospitals and outpatient care centers will usually rely on external providers of such services to support comprehensive care to their patients. Key services provided in this area include laboratory and anatomic/anatomical pathology services, diagnostic imaging/radiology services and pharmacies. Close associations with these service providers are formed with provider offices and hospitals to ensure effective and comprehensive healthcare delivery.

Healthcare Payers

From the perspective of the healthcare delivery organization, payments generally come from three types of entities: government-financed and managed programs, insurance programs administered by private entities and personal funds.

Government-financed and managed programs are generally funded through countries' general taxes. These programs may pay for the healthcare system directly, as does the single-payer system of the NHS of the United Kingdom, which finances hospitals and salaries of most NHS providers. Alternatively, government programs may provide funding for a national health insurance program, such as that in Canada, where the program is administered through provincial health plans. These plans fund hospitals through community trusts and pay providers through the government's insurance program. Multipayer systems, such as that of the United States, are more complex to administer. The U.S. system includes the federally managed program for Medicare, through which citizens 65 years of age and older have most of their healthcare needs provided for; the shared-cost federal/state program Medicaid, which supports care for low-income families; another federal/state program called the Children's Health Insurance Program (CHIP), which provides care to children of uninsured families

that do not qualify for Medicaid; and several others for smaller groups of special populations. These three programs provide coverage for roughly one-third⁷ of the U.S. population.

Insurance programs administered by private entities are generally funded by employers, citizens themselves or by a combination of both. Germany mandates shared health insurance contributions from employers and employees, but these funds are administered by about 1100 private, nonprofit sickness funds that cover more than 90% of the population by making payments to hospitals and providers. In the United States, roughly 55% of citizens have employer-based insurance and an additional 11% purchase insurance directly.⁸ Even in many countries that have universal healthcare programs, people who can afford to purchase private health insurance are usually allowed to do so. The purchase of private health insurance generally allows the purchaser to receive services that may not be covered under a national benefit structure and may also improve access to care. When healthcare organizations treat patients insured through a private entity, they bill the private health insurance entity rather than a government organization.

Healthcare services are often personally funded by individuals who have government or employer-supported health plans, as well as by the uninsured. While patient co-payments were not required by many universal coverage programs in years past, an increasing number of countries are adding this requirement to offset growing healthcare costs. In the United States, co-payments are required under most healthcare programs, whether government or privately managed. Persons with higher incomes may choose to avoid the constraints of insurance programs and, as they can tolerate the financial risk, are cash payers. Lastly, and perhaps most perversely, those who fail to qualify for government-supported programs such as Medicaid in the United States but still cannot afford to purchase health insurance find themselves at the mercy of a healthcare system that charges premium, nonnegotiated rates to those least able to afford such costs. A 2019 study on bankruptcies in the United States found that 66.5% of all bankruptcies from 2013 to 2016 were tied to medical issues, with 58.5% caused specifically by medical bills. The rest met criteria for medical bankruptcy due to income loss related to illness.⁹ Although politically divided, the Patient Protection and Affordable Care Act signed into law on March 23, 2010, was intended to help reduce some of these financial risks for patients in the United States and make healthcare more affordable and accessible. Despite gains in coverage and access to care from the ACA, findings suggest that it did not change the proportion of bankruptcies with medical causes.⁹

In summary, from the perspective of the healthcare delivery organization, three basic types of payers are at play: government-financed and managed programs, insurance programs administered by private entities and patients who pay with personal funds. Add to that the number of potential insurance companies in the market and the differences in payers' health benefits coverage,

and the management of accounts receivable can become an incredibly complex task requiring sophisticated administration and automation support.

Interrelations Within and Across Healthcare Organizations

The purposes of interrelationships among healthcare organizations are numerous. Some of the key requirements include enabling comprehensive care, assuring effective transfers of care, ensuring the general portability of information in support of care, reporting public and population health information, obtaining appropriate reimbursement for care and supporting particular organizational models of care.

Enabling Access to Comprehensive Care Services

As noted in the section above, healthcare organizations are reliant upon a number of partners within or outside of their organization to enable the delivery of comprehensive care. Providers in the outpatient setting often rely on external laboratory and radiology services to ensure accurate diagnoses and on the availability of pharmacies to provide prescribed medications to complete the provider's care plan for the patient. Absent effective communications—increasingly electronic today—the care process will break down and patient outcomes could suffer as a result. This is the area in which technology is having the greatest impact. Various public and private initiatives are in place to facilitate the seamless, transparent interchange of patient clinical data. “Interoperability” is the keyword here, as the transferred data must be consumable by the receiving system in order to eliminate duplicate data entry and make the data instantly available to the treating provider.

Assuring Effective Transfers of Care

When a provider determines that the scope of care required for a patient's treatment is outside of his or her capability, care is generally transferred to another provider or healthcare organization. Effectively communicating health information during the transfer of care is exceptionally important to the patient's welfare. When a complete set of information is transferred with the patient regarding the history of the present illness, along with subjective and objective findings that include the results of diagnostic tests performed and medications prescribed and administered, the receiving organization can advance the patient's treatment in a substantially more efficient and effective manner. When such information does not accompany a patient during transfer, precious time is often lost, as that information is re-created through repetitive evaluations and repeat administration of diagnostic tests that are sometimes of an invasive nature. To facilitate the provision of essential health information during transfer of care

between providers or facilities, an initiative in the United States encourages the use of Health Level Seven International's (HL7) Consolidated-Clinical Document Architecture (C-CDA), which is a standard for electronically transmitting continuity of care information.¹⁰

Both the loss of time in treating an acute patient and the need to repeat invasive tests can have adverse consequences for a patient. Not having a clear awareness of the pharmaceutical products a patient may be taking or has been administered in the present course of care can be life threatening and has led to attempts in some countries to ensure that medication reconciliation has taken place. In the United States, medication reconciliation is defined as the process of identifying the most accurate list of all medications that the patient is taking, including name, dosage, frequency and route, by comparing the medical record to an external list of medications obtained from a patient, hospital or other provider.¹¹

Ensuring the General Portability of Care

Even when patients are enrolled to a specific clinical organization or provider for care, there are times when they will need care from other providers. This occurs not only under the two scenarios covered above, but also when patients travel away from their routine places of care. If a patient who is several hundred miles away from home becomes ill or is injured in an automobile accident, having the correct health information available can have a powerful influence on the patient's health outcomes from the clinical intervention. The most common example is that of the new provider who does not know a patient's medication allergies. To overcome these challenges, some nations are implementing national health information exchanges (HIEs) that endeavor to provide virtual, real-time access to patients' health information. One such initiative is Canada's Health Infoway, a nonprofit organization made up of the 14 federal, provincial and territorial deputy ministers of health. Infoway's vision is "healthier Canadians through innovative digital health solutions."¹² In the United States, much work is under way to define standards to facilitate ease of sharing health information both through HIEs at the state level and nationally via the Nationwide Health Information Network (NHIN) and, more recently, through the Nationwide Interoperability Roadmap. The United Kingdom has also invested heavily in its NHS Digital (formerly Health and Social Care Information Centre (HSCIC)) through its national health system, which connects England's healthcare organizations to facilitate the availability of clinical information that can be shared to support the continuity of care and safety of patients in the healthcare process.

Reporting Public and Population Health Information

Improving health status at the local or national level requires more than ensuring information availability at the point of care. It requires a sort of information use that is often referred to as the secondary use of health

information because the information is used outside of the direct healthcare delivery process, which is viewed as the primary use of health information. The United Kingdom's Secondary Use Services (SUS), through its NHS Digital program, leverages the SUS in support of public health, research and management, among other activities. Similarly, the U.S. Centers for Disease Control and Prevention have been receiving health information from across the country for many years not only to support such public health activities as actively responding to disease outbreaks, but also to work proactively through education on prevention and healthy lifestyles through its Division of Population Health.

Obtaining Appropriate Reimbursement for Quality Care

In most publicly funded healthcare systems, the hospitals and clinicians delivering the care are private entities, so a substantial amount of communication must occur to ensure reimbursement for the care provided. Whether a healthcare organization is a one-provider office, a multispecialty clinic, a hospital or another entity, it must submit claims to be reimbursed for care provided. The exception to this rule, of course, is in those countries, such as the United Kingdom, that have a national health system with both government facilities and a largely government-paid healthcare staff. Claims may be submitted to state Medicaid offices, the Centers for Medicare & Medicaid Services (CMS) for Medicare, or private insurance companies in the United States or to provincial offices in Canada, but no healthcare organization will exist for long absent an ability to efficiently process—and be reimbursed for—claims for care. In multiplayer systems, such as in the United States, this process can be exceptionally complex and require a surprising investment of administrative overhead and systems complexity. Both governments and major employers are increasingly concerned that improved health outcomes are associated with the cost of care. In the United States, the CMS Merit-Based Incentive Payment System (MIPS) will provide incentive payments to eligible professionals who satisfactorily participate in one of two value-based payment models, Alternate Payment Models (APMs) or Quality Reporting under MIPS. Similarly, the Leapfrog Group supports healthcare purchasers and insurers by “mobilizing employer purchasing power to alert America’s health industry that big leaps in health care safety, quality and customer value will be recognized and rewarded.”¹³

Supporting Particular Organizational Models of Care

While the number of models of care is too great to discuss at length here, a key trend we see in the industry today is the need to share increasing volumes of information among partners in the healthcare system. Such partners in care are

often referred to as an integrated delivery system (IDS). Stephen Shortell has defined the IDS as

administrative entities that bring together a set of organizations that provide a coordinated continuum of services to a defined population and are willing to be held clinically and fiscally accountable for the outcomes and health status of the population served.¹⁴

While some IDSs are more integrated (from an ownership or a systems point of view) or more complete (providing a broader continuum of services) than others, the trend in the United States has been toward increasing integration. A type of IDS referred to as an accountable care organization (ACO) has been around for a few years and was recently codified in law by the Patient Protection and Affordable Care Act—often referred to as simply the Affordable Care Act. In an ACO, inpatient and outpatient providers of care are administratively organized into a single organization, often including a health insurance company, to provide a full spectrum of healthcare services to large groups of Medicare patients. If the ACO is able to reduce costs to CMS for their enrolled population while improving the quality of care, the ACO gets to share in the cost savings. As might be imagined, proving improvements in quality concurrently with reduction in healthcare costs is an information-intensive process that requires close integration of the partners in an ACO. Many ACOs will likely be developed from existing IDSs, as the IDS model already has many of the components necessary to achieve the quality and cost objectives of CMS.

In summary, interrelations within and across healthcare organizations can be as simple as a GP requesting an x-ray for a patient or reporting a patient disease observation to a public health entity. On the other end of the spectrum, the relationship could be as complex as assembling an integrated network of care providers under an ACO with sophisticated cost and quality reporting requirements. Each of these constructs not only requires effective coordination, but is also increasingly supported by sophisticated automation capabilities that reduce the labor involved while ensuring more reliable process support.

Roles and Responsibilities of Healthcare Information and Management Systems Professions

The number of position titles in the health information management (HIM) and health information technology (HIT or IT) space is quite large. In a single-provider office, the person who performs the broad range of HIM/IT tasks may work less than full-time or double as the office manager. In a large academic

medical center or IDS, the IT department could include more than 100 personnel. The top IT position in healthcare organizations is usually referred to as the chief information officer (CIO). The CIO is generally accountable for a broad range of IT activities, including many that are not directly related to healthcare. Among these would be such things as maintaining organizational computing rooms, individual desktop computers, telephone communications (including an increasing variety of mobile and BYOD (Bring Your Own Device) and IOT (Internet of Things) equipment, secure Internet access, local and wide area networks and the organization's website.

In larger organizations, the complexity of HIM and IT functions leads to specialization. The chief security officer (CSO) endeavors to secure the healthcare organization's computing and communications assets from either intentional or unintentional security breaches from inside or outside the organization. Lead IT security personnel may carry the Certified Information Systems Security Professional (CISSP®) credential from the Information Systems Security Certification Consortium, Inc. (ISC²®).¹⁵ Similarly, the privacy officer is responsible for ensuring that personally identifiable data, including protected health information, is accessed exclusively by those authorized to do so under a broad range of laws—in the United States, the Privacy Act and the Health Insurance Portability and Accountability Act (HIPAA), among others. A credential leveraged in supporting this role is that of Certified in Healthcare Privacy and Security (CHPS®).¹⁶

The chief technology officer (CTO) is generally responsible for the technical architecture of the IT systems supporting the organization and often looks toward the developing market in HIM and IT to try and keep the organization competitive from a technology perspective. This could range across the full spectrum of such things as mobile computing platforms, cloud-based computing and state-of-the-art clinical applications.

Health information managers have held roles in medical records departments for decades, but prior to the common availability of electronic health records (EHRs), there was not a strong relationship between HIM and IT departments. As medical records functions have become increasingly automated over the past few years, culminating in EHRs of advanced capabilities, HIM departments are finding themselves at the center of the IT activities in healthcare organizations. In the HIM area, you will find professionals with the Registered Health Information Administrator (RHIA) or Registered Health Information Technologist (RHIT®)¹⁷ credential in the United States or with the Certification in Health Information Management (CHIM) credential in Canada.¹⁸ Healthcare organizations may also rely on the Certified Professional in Healthcare Information and Management Systems (CPHIMS™)¹⁹ credential to ensure that staff members in the IT department have a broad base of knowledge and experience in healthcare information and management systems.

The role of clinical informatics professionals is also expanding as the practice of medicine is increasingly supported by EHRs and other health information systems. The role of clinical informatics is discussed in depth in [Chapter 3](#).

The American Medical Informatics Association (AMIA) advocates advanced training for clinicians to develop a clinical informatics subspecialty in the practice of medicine.²⁰ A frequently used title for staff with such backgrounds in the health information space is that of chief medical information officer (CMIO). Popular variants are chief medical informatics officer and chief health information officer (CHIO), and in the area of nursing, chief nursing informatics officer (CNIO). With the increasing use of IT in healthcare processes, effective integration of clinical insights into systems solutions is of great importance.

While the great variety of organizational structures in IT departments is driven by such factors as organization size, geographical distribution and line of business, a sample organization structure a CIO may oversee could include

- Application development and support
- Data center operations
- Database administration
- Desktop support
- Information security
- Network operations

Similarly, the specific roles an IT organization may expect to fill would vary based on the functions the organization supports. These roles could be filled by staff, consultants or contractors. Examples of the more common types of positions one might expect to see include

- Desktop support technician
- Database administrator
- Programmer/application developer
- Web developer
- Network engineer/analyst
- Systems analyst/administrator
- Project manager
- Security analyst

In summary, there is great variation in the size and structure of IT departments within healthcare organizations, which drives the number and specialization of jobs within the IT organization.

Roles of Government, Regulatory, Professional and Accreditation Agencies in Healthcare

Given the importance of healthcare in our lives—including our quality of life, our longevity and even our ability to continue living following life-threatening encounters with disease or accidents—and the incredible expense of delivering high-quality healthcare to very large populations, it is not surprising that a tremendous amount of government oversight and a great number of regulatory bodies are involved in healthcare processes. An overview of these organizations and their associated activities is provided below.

Government

The role of governments in healthcare is quite pronounced, as discussed in the previous section on healthcare organizations. Because most countries continue to experience increases in the proportion of their gross domestic product (GDP) consumed by healthcare activities, they are concerned that these trends will weaken their national economies if not slowed—or even stopped and reversed. Stopping the growth in healthcare costs as a percentage of GDP requires exceptionally difficult decisions for governments in industrialized countries, as citizens have grown accustomed to the existing health benefits programs.

According to the Peterson Kaiser Health System tracker:

Over the past four decades, the difference between health spending as a share of the economy in the U.S. and comparable OECD countries has widened. In 1970 the U.S. spent about 6% of its GDP on health, similar to spending by several comparable countries (the average of comparably wealthy countries was 5% of GDP in 1970). The U.S. was relatively on pace with other countries until the 1980s, when its health spending grew at a significantly faster rate relative to its GDP. In 2017, the U.S. spent 17% of its GDP on health consumption, whereas the next highest comparable country (Switzerland) devoted 12% of its GDP.²¹

Figure 1.2 further illustrates health expenditure as a share of GDP as reported by the OECD in 2019.

It is easy to see that healthcare is consuming our national economies at an unsustainable rate, making governmental engagement in these factors essential.

To address the growth in healthcare costs, many nations' governments are considering changes to their health programs. Among these are enhancements to the primary care delivery system to manage chronic diseases more effectively in Australia, experimentation with privatization in Canada, global budgeting and competition among sickness funds in Germany, requiring long-term care residents to pay for room and board in Japan and consideration of pro-market

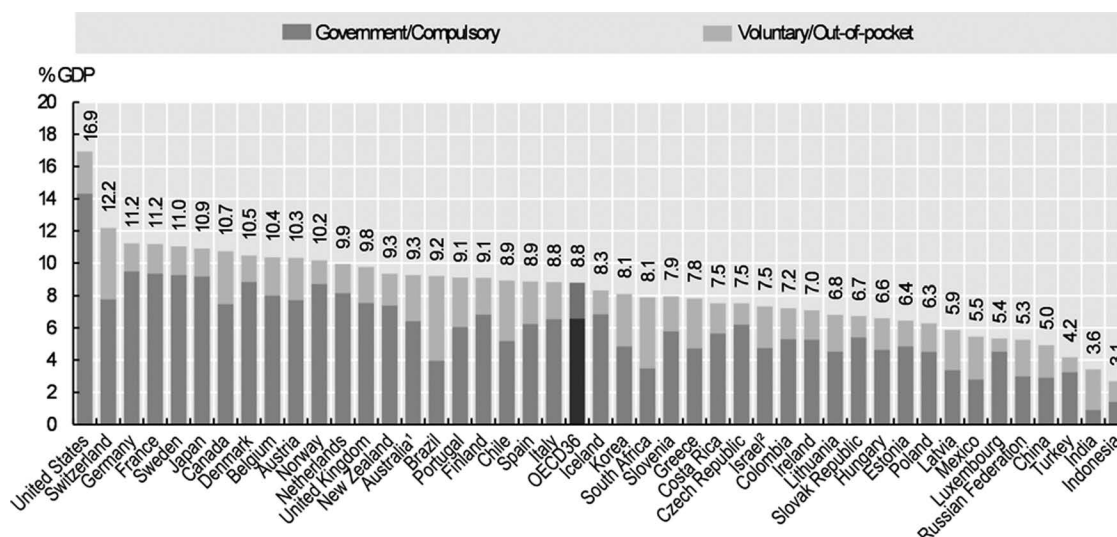


Figure 1.2 OECD health expenditure as a share of GDP, 2018. (From OECD, *health expenditure in relation to GDP, in health at a glance 2019: OECD indicators*, OECD publishing, Paris, <https://doi.org/10.1787/4dd50c09-en>.²).

reforms in the United Kingdom.²² Similarly, the development of ACOs in the United States is being encouraged with a goal of producing better health outcomes at lower cost. Such trends will continue as we collectively grapple with the best ways to balance quality, access, cost and safety for the greatest proportion of our populations.

Healthcare Regulators

Healthcare regulatory agencies serve a broad range of functions in the healthcare environment, generally by implementing the provisions of a nation's health laws through a more explicit system of regulations. In the United Kingdom, the Health and Care Professions Council (HCPC) is the statutory regulator for 15 professions with nearly 290,000 health and care professionals in the country.²³ The HCPC maintains standards of proficiency and conduct for the professions it regulates. In the United States, the dominating regulatory entity is the CMS. The CMS drafts the rules and finalizes the regulations for the management of multiple federally subsidized healthcare programs for the nation through a complex process of rulemaking involving public engagement. The Food and Drug Administration (FDA) in the United States evaluates and approves medical devices and new drugs used in the treatment of patients. Similarly, medical devices in Canada are regulated by Health Canada's Therapeutic Products Directorate.

While it may be a common belief that regulatory organizations are always government entities, it is not uncommon to find that private-sector organizations, commissions and associations may perform in a regulatory capacity as well. These are addressed in the following sections.

Professional Associations

According to the *Merriam-Webster Dictionary*, a profession is “a calling requiring specialized knowledge and often long and intensive academic preparation.”²⁴ Professional associations in the healthcare environment have proliferated greatly, many serving in a semi-regulatory role. The College of Kinesiologists of Ontario²⁵ provides a good description of the roles and functions of professional associations, stating that their primary role is to advocate on behalf of its members and promote the profession and may

- Advocate with policy makers in the interest of members
- Market and promote the profession
- Provide continuing professional development opportunities
- Represent members interests by monitoring development which may impact scope of practice, employment opportunities and enhancing relationships with related professionals

Regulatory bodies on the other hand have a purpose of protecting the public by regulating the profession. They may

- Set requirements for entry to the profession
- Maintain a list of individual eligible to practice
- Develop standards of practice
- Receive and investigate complaints about professional practice and administer appropriate disciplinary action when necessary
- Require professionals to participate in continuing professional development

Professional associations exist for nearly every medical specialty, nursing and allied health profession, health administration and IT professions. A sampling of professional associations related to healthcare and healthcare information and technology in the United States is shown in [Table 1.1](#).

Accreditation Organizations

Accreditation organizations (AOs) have substantial interactions with healthcare organizations and generally play a semi-regulatory role in that they often serve on behalf of federal organizations to ensure specific standards or conditions of participation (CoP) are met. The Joint Commission and Joint Commission International (JCI)²⁶ are perhaps the most recognized AOs utilized for the certification of hospitals in the United States and internationally. The JCI currently operates in more than 100 countries

Table 1.1 Professional Associations Related to Healthcare and Healthcare IT

<i>Clinical</i>	<i>Administrative and IT</i>
American Academy of Pediatrics	American College of Healthcare Executives
International Confederation of Midwives	American Health Information Management Association
International Council of Midwives	American Medical Informatics Association
Royal College of General Practitioners	Healthcare Information and Management Systems Society
World Dental Federation	Information Systems Security Association International
World Medical Association	International Medical Informatics Association

around the globe. In the United States, the AOs under CMS are very visible examples of accreditation agencies. CMS AOs determine compliance with Medicare CoP. When a healthcare organization is certified by a CMS AO for compliance with CMS requirements, the organization is deemed to have met the requirements and may then bill CMS for covered services. For participation in Medicare programs, a number of other organizations are authorized to act as AOs, as shown in the [Table 1.2](#).

The interrelationships among government agencies, regulators, professional associations and AOs can be surprisingly complex. For example, in the United States, [Figure 1.3](#) shows the many organizations that play a role in the life of a physician assistant moving through training and into medical practice.

Summary

We have covered the breadth of organizational structures in the public and private domains, defined the nature of their interactions, identified roles of healthcare information and management systems professionals and described the great number of governmental, regulatory, professional and AOs affecting our healthcare delivery systems today. The complexity of the processes can be overwhelming. Fortunately, advances in automation, including inexpensive data storage, increasing network capacities and simplified software programming tools, will allow professionals in healthcare information and management systems to make life simpler for those who deliver care by transferring much of the information processing requirements to automated tools.

Table 1.2 CMS-Approved Accreditation Organizations

<i>Organization</i>	<i>Program Type</i>
Accreditation Association for Ambulatory Health Care (AAAHC)	Ambulatory surgical centers (ASCs)
Accreditation Commission for Health Care, Inc. (ACHC)	Home health agencies (HHAs)
American Association for Accreditation of Ambulatory Surgery Facilities (AAAASF)	Hospices
	ASCs
	Outpatient physical therapy (OPT) providers
	Rural health clinics (RHCs)
American Osteopathic Association/Healthcare Facilities Accreditation Program (AOA/HFAP)	ASCs
	Critical access hospitals (CAHs)
	Hospitals
Center for Improvement in Healthcare Quality (CIHQ)	Hospitals
Community Health Accreditation Program (CHAP)	HHAs
	Hospice
DNV GL-Healthcare (DNVGL)	Hospitals
	CAHs
Institute for Medical Quality (IMQ)	ASCs
National Dialysis Accreditation Commission (NDAC)	ESRD Facilities
The Compliance Team (TCT)	RHC
Joint Commission	ASCs
	CAHs
	HHAs
	Hospices
	Hospitals
	Psychiatric hospitals

Source: Centers for Medicare & Medicaid Services, <https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/SurveyCertificationGenInfo/Downloads/Accrediting-Organization-Contacts-for-Prospective-Clients-.pdf>.²⁷

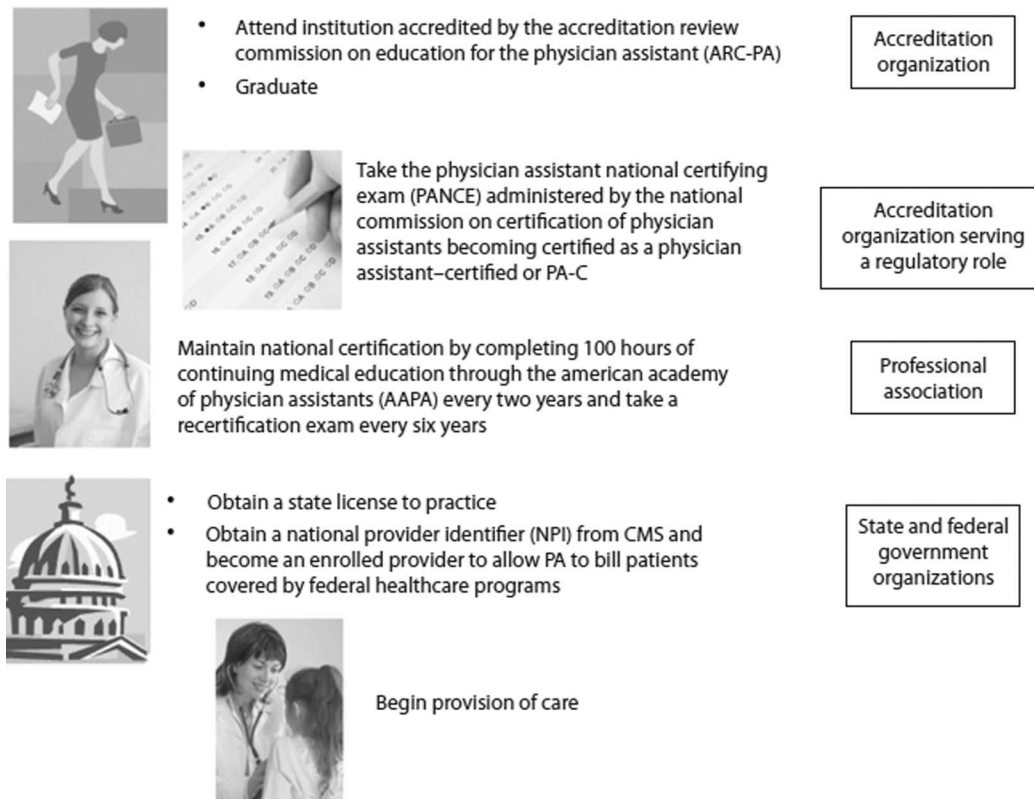


Figure 1.3 Steps and organizations involved in becoming a practicing physician assistant. (Adapted from AAPA, becoming a PA, Alexandria, VA: AAPA, http://www.Aapa.org/your_pa_career/becoming_a_pa.Aspix.²⁸).

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